

**REMARKS**

Claim 9 has been canceled. Claims 1-8 and 10 and new Claim 11 remain active in the case. Reconsideration is respectfully requested.

Applicants' representative wishes to thank Examiner Nakarani for the helpful and courteous interview of September 3, 2003. As a result of the discussion it is believed that the issues in the case have been clarified and that the prosecution of the application has been materially advanced.

The present invention relates to a layered composite sheet formed from a thermoformable thermoplastic or mixture of thermoplastics.

**Claim Amendments**

Claim 1 has been amended to specify the thermoplastic material of the substrate in terms of specific thermoplastic materials disclosed in the paragraph of page 2, lines 24-32 and in lines 1-7 of page 6 of the specification. The thicknesses of the substrate and outer layer are taken from the text at page 3, lines 6-9. Further, the language of Claim 1 has been amended to recite that the constituency of the outer layer "consists of" the named thermoplastics or "consists of" the named thermoplastics in admixture with at least one of the conventional auxiliaries named in the claim. Support for the named auxiliaries can be found on page 3, lines 21-26 of the text.

Claims 2-6 and 9 have been amended to make minor clarifying amendments thereto. Further, the range of outer layer thickness in Claim 3 has been amended as indicated and as supported on page 3, lines 6-9 of the text.

Claim 7 has been amended only to simplify the language of the claim. The scope of the claim has not been affected. No new matter has been introduced into the record by the amendment to the claim

Claim 8 has been amended to limit the scope of outer layer materials already recited in Claim 1.

No new matter has been introduced into the record by the amendment to the claim. Entry of the amendment into the record is respectfully requested.

#### Prior Art Rejection

As to the matter of the Kishida et al patent cited during the prosecution of the parent application, the same discloses a composite sheet that has a conductive surface. As argued by applicants' representative at the interview, a clear distinction between the present layered composite sheet and the composite structure of the reference is that the outer layer of the present composite does not contain conductive carbon black, whereas the surface layer of the composite of the patent must contain conductive carbon black. Present Claim 1 has been amended in a fashion which is believed to exclude conductive carbon black from the composition of the outer layer by the language employed in the claims which excludes such a property altering component as conductive carbon black. Accordingly, Claim 1 is believed patentably distinguished over the patent on this basis.

Applicants also note with respect to Kishida et al as stated previously that although a lubricant is added to the material of the conductive layer, it must be observed that the purpose for doing so is to improve the fluidity of the composition in the co-extrusion molding step of

the disclosed process in the preparation of the product of the reference. On the other hand, in the present invention, the outer layer is provided with a lubricant in the stated amount in order to aid in release of a sheet from the surfaces of a molding apparatus. The stated amount of lubricant of 0.01 to 1 % by weight is effective in achieving the result desired in the present invention (See paragraph 2, page 1 of the specification). The advantageous effect achieved in the present invention is shown in the examples of the application, particularly on pages 8 and 9 of the text. Example 1 describes the production of co-extruded sheets of a substrate layer (PS1) and an outer layer of combined PS2, PS3 and MB. The several polystyrene materials are described in detail at the top of page 8, and it should be noted that MB (Masterbatch) contains 5 % by wt calcium stearate lubricant. On the other hand, in Comp Ex. C1, co-extruded sheets are prepared using the same polystyrene materials of Ex.1 except that the lubricant containing MB component was not employed. The results presented in Table 1 show the substantially superior demolding performance of coextruded sheets of the present invention over comparative sheets which do not contain a lubricant component in the outer layer. The results of the invention are achieved at the stated relatively low lubricant content range of the present claims. Accordingly, applicants submit that the Kishida et al patent does not lead one of skill in the art to the present invention as claimed.

As argued at the interview, Kitazaki et al does not show or suggest the claimed layered composite sheet of the invention which is formed from certain thermoplastic materials. Column 1, lines 37-49 of the patent discloses a surface protective film formed of a layer (A) and a layer (B), wherein layer (A) is formed at least of a hydrogenated product of a random copolymer comprising styrene and a diene series hydrocarbon and optionally a

polyolefin, and wherein layer (B) is formed of at least a polyolefin and optionally a hydrogenated product of a random copolymer comprising styrene and a diene series hydrocarbon. On the other hand, as set forth in Claim 1 as presented, the thermoplastic material of the substrate layer is limited to glass-clear polystyrene, impact modified polystyrene, styrene-butadiene block copolymers with 15 to 40 % by wt of butadiene and 85 to 60 % by wt of styrene and mixtures thereof. None of these materials is taught or suggested by the patent. Similarly, the several thermoplastic polymer materials for the outer layer of the composite of present Claim 1 are not shown or suggested by Kitazaki et al. Accordingly, the composite of the patent is structurally different from the present composite from a material point of view.

Applicants also believe that the claimed composite sheet is distinguished over the surface protective film of Kitazaki et al on the basis of layer thicknesses, where in the present invention the thickness of the substrate layer ranges from 1 to 100 mm and the thickness of the outer layer ranges from 10-500  $\mu\text{m}$ . On the other hand, Kitazaki et al only teaches that the thickness of the entire surface protective film ranges from 1 to 1000  $\mu\text{m}$ . Thus, at its greatest thickness, the film of the patent is 1.0 mm thick which clearly makes the film product of the reference substantially thinner than the composite sheet of the present invention.

Applicants also again maintain that there is no hint in Kitazaki et al of how to make a thermoformable sheet under conditions which enable control of the wall thickness ratio of the product sheet, whereas the description of the present invention at page 2, lines 4 to 11 of the specification as originally filed or page 2, lines 12-19 of the Amended Pages describes

improved control of the wall thickness ratio of the layers which permits reduction in sheet thickness with the associated cost and material savings. Key to the improved process is the improved wall-slip performance of the present process which reduces the high wall thicknesses at the first areas of contact with the thermoforming mold employed. It is therefore believed that the layer thickness requirements of the present claims are not just obvious and easily accomplishable variants that one of skill in the art would readily understand. Accordingly, the present invention as claimed is believed distinguished over the Kitazaki et al disclosure.

As to the Park et al disclosure, the same clearly discloses a multi-layer, heat-sealable structure which has exceptionally low film to film coefficient of friction and avoids package to package sticking (col 1, lines 9 to 14). The base layer (a), as well as the skin layer (b) comprises specific polyolefins. On the other hand, neither of the Kishida et al nor the Kitazaki et al patents shows or suggests composites that are prepared from polyolefins. Thus, it is not seen how the disclosure of the reference can be combined with the disclosures of Kishida et al and Kitazaki et al where the polymer components of the layers of the composites of the references are quite different from polyolefins. It is therefore not seen how the Park et al disclosure improves upon the disclosures of Kishida et al and Kitazaki et al.

As to the matter of newly presented Claim 11, the same is believed to be clearly distinguished over the cited references since none describe a thermoforming molding process from a composite material. Accordingly, Claim 11 is believed patentable over the prior art that has been cited.

Appln. No.: New Application  
Preliminary Amendment

It is now believed that the application is in proper condition for consideration on its merits.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

A handwritten signature in black ink, appearing to read "F. Oblon", with a long horizontal flourish extending to the right.

Norman F. Oblon  
Attorney of Record  
Registration No. 24,618

Frederick D. Vastine, Ph.D.  
Registration No. 27,013

Customer Number  
22850

Tel: 703-413-3000  
Fax: 703-413-2220  
NFO/FDV